

The Official Action of 13 July 2007 has been carefully considered and reconsideration of the application in view of the present submission is respectfully requested.

The claims stand rejected under 35 USC 103(a) as allegedly being unpatentable over Nakamura et al, either alone or in combination with EP 1219689, or as allegedly being unpatentable over Yatake, either alone or in combination with EP 1219689 or GB 2370580. Applicants respectfully traverse these rejections.

#### 1. The Claimed Invention

The claimed invention has been developed to solve the problem presented by “golden gloss”, namely: when a printed image obtained by recording with a black ink composition having a low carbon black concentration reflects the light of a fluorescent lamp or the outside light, the reflected light glistens in gold (see specification at, e.g., page 6, first paragraph). The inventors surprisingly found that, with ink compositions having such low carbon black concentrations (less than 0.4 wt%), the problem could be solved by including in the ink compositions a fine particle emulsion so long as the solid content of the fine particle emulsion is 20 times or more the content of the carbon black.

On the basis of Applicants’ findings, the present claims recite two (2) variables which are result-effective for controlling golden gloss: (a) a content of carbon black in the black ink composition of less than 0.4 wt%; and (b) a ratio of solid content of fine particle emulsion to content of carbon black of 20 times or more. With respect to (a), as discussed in the specification at page 13, line 1-page 14, line 3 with reference to Fig.

1 of the drawing, the golden gloss phenomenon occurs mainly in a region recorded with a light black ink composition wherein the carbon black is present in an amount of less than 0.4 wt%. With respect to (b), as discussed in the specification at, for example, page 16, line 6-page 17, line 15 and as shown in the Examples and Comparative Examples in the specification and in the Declaration under 37 CFR 1.132 filed 3 July 2007, to solve the problem of golden gloss it is critical to include in the black ink a fine particle emulsion having a solid content of 20 times or more of the content of the carbon black.

The description in the specification and the evidence of record show that the claimed combination of components in the recited amounts are not merely a combining of known elements to yield predictable results. Rather, the recited variables are result-effective in achieving a surprising and unpredictable result, namely the restraint of golden gloss.

## 2. The Prior Art

### A. Nakamura et al

Nakamura is directed to an ink comprising (i) a pigment, (ii) a resin dispersant, and (iii) a thermoplastic resin emulsion, wherein only the weight ratio of (i) to (ii) is described. There is nothing in the text of Nakamura that shows or suggests any weight ratio of (i) to (iii), i.e. a ratio of the solid content of the fine particles relative to the content of the carbon black. The only ratio defined in Nakamura is the former one. Nakamura cannot be considered to show or suggest the recited weight ratio and, *a fortiori*, cannot show or suggest the result-effective nature thereof. Indeed, Nakamura addresses the problems of storage stability, print quality (bleeding) and jetting stability,

and there is nothing to show or suggest that the ratio (i) to (iii) is result-effective for solving these problems.

#### B. Yatake

Yatake is directed to an ink set comprising light color inks of a plurality of colors and dark color inks of a plurality of colors, wherein the light color inks contain a fine polymer particle (see, for example, Claim 1). Yatake generally discloses the pigment content in the light inks as being “from 0.01 to 10 wt%, preferably from 0.1 to 5 wt%” (col. 7, lines 53-55) and the content of the fine polymer particles as being “0.5 to 10 wt%, preferably 2.5 to 8 wt% (col. 4, lines 18-19). As with Nakamura, Yatake is also silent about the solid content in connection with the content of the fine polymer particles. Yatake *a fortiori* also does not show or suggest the result-effective nature of the claimed variables, i.e., maintaining the solid content of the fine particle emulsion at 20 or more times the content of carbon black with the content of carbon black being less than 0.4 wt %.

#### C. The Secondary References

Neither of the secondary references cited by the Examiner, EP 1219689 and GB 2370580, has been cited to show or suggest the claimed ratio of the solid content of fine particles of an emulsion relative to the content of carbon black or the result-effective nature of the claimed variables. Accordingly, neither can supplement the deficiencies in the cited primary references nor provide any motivation or reason to modify the primary references in respect of the claim limitations discussed herein.

### 3. Reasons The Rejections Under 35 USC 103(a) Should Be Withdrawn

The cited references do not show the following claim limitations: (a) the recited ratio of the solid content of the fine particle emulsion to the content of the carbon black; or (b) the result effective nature of the recited ratio, either alone or in conjunction with the recited content of carbon black of less than 0.4 wt%. Moreover, as next discussed, the rejections contain no articulated reason with rational underpinning to support a legal conclusion of nonobviousness with respect to these claim limitations.

#### A. The References Do Not Show The Claimed Ratio

The Examiner acknowledges that the cited primary references do not “explicitly” disclose a ratio of solid content of fine particle emulsion to content of carbon black, but apparently considers that the primary references “implicitly” disclose a solid content of fine particle emulsion to carbon black ratio within the claimed range. In so doing, the Examiner appears to conclude that a comparison may be made by taking into account the potential ratio ranges derivable, by calculation, from the general disclosure of the cited references (see Official Action of 13 July 2007 at page 10). As next discussed, this is respectfully not a rational basis upon which to support a legal conclusion of obviousness.

With this analysis, the Examiner is respectfully reading into the reference a range of ratios that is not there. The Examiner is speculating what the **outer limits** of a range could be based upon the described ranges of the individual components, but there is nothing in the text of the references that describes any actual range of ratios within such possible outer limits. Thus, Nakamura discloses the content of the pigment as bring “preferably from 0.1 to 10% by weight, more preferably from 0.5 to 5% by

weight” (at the bottom in col. 3) and the content of the thermoplastic resin component as being “preferably from 0.2 to 20% by weight, more preferably from 7 to 20% by weight” (col. 7, lines 7-8). Nakamura is silent about the solid content in connection with the content of the thermoplastic resin component, and is silent about any ratio of resin to carbon black. Similarly, Yatake is silent about any ratio of resin to carbon black.

In short, the general disclosures of the cited references do not teach any ratio of solid content of fine particle emulsion to carbon black as claimed. Accordingly, although the Examiner is correct that one must look to the whole reference for what it teaches, including the general disclosure (Official Action of 13 July 2007 at pages 5 and 6), the general disclosures of the cited references do not provide a rational basis upon which one of skill in the art would conclude that the claimed ratio is present. With respect to the reference examples, Applicants have shown that the examples in the primary references do not show or suggest the claimed ratio. See Amendment filed 13 April 2007 at paragraph bridging pages 6-7 (Nakamura examples) and first full paragraph on page 8. Indeed, the Examiner has acknowledged that the reference examples do not show the claimed ratio. See Official Action of 13 July at page 5 (Nakamura) and page 6 (Yatake) respectively.

**B. The References Do Not Show the Result-Effective Nature of the Claimed Variables**

The Examiner has acknowledged that neither of the primary references, Nakamura et al., or Yatake, explicitly discloses the ratio of solid content of fine particle emulsion to content of carbon black as presently claimed. The Examiner

nevertheless maintains that both references allegedly recognize that each of the pigment and resin individually is a result effective variable and, based upon this, asserts that **the ratio** of solid content of fine particle emulsion to content of carbon black is thus also recognized as a result effective variable.

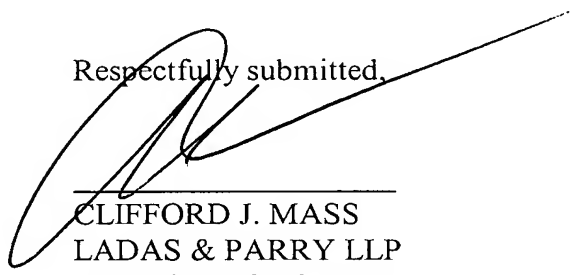
Applicants respectfully submit that this is a mere conclusory statement that is not supported by articulated reasoning with rational underpinning. Assuming that each of the references teaches the result effective nature of each of the variables individually, it does **not** follow that **the ratio** of the variables is result-effective. Thus, although Nakamura may teach that each of the variables individually should be optimized to improve, for example, storage stability, print quality or jetting stability of the ink composition described therein, this does not mean that a particular **ratio** of these variables would be desirable for improving such properties.

The controlling question in determining whether the prior art teaches the result-effective nature of the claimed ratio is whether one of skill in the art would recognize that any desirable property of an ink is a function of the ratio of the solid content of fine particle emulsion to the content of the carbon black when the carbon black is present in the ink in a concentration of less than 0.4wt%. See *In re Antonie*, 195 USPQ 6, 8 (CCPA 1977). Recognition of this functionality is essential to the obviousness of conducting experiments to determine if the performance of an ink could be improved by varying the respective amounts of the carbon black and the solid content of the fine particle emulsion relative to one another. In the absence of anything in the cited references to show or suggest such recognition, there is respectfully no rationale underpinning to support the legal conclusion of obviousness for the claimed ink composition with the recited ratio.

#### 4. Conclusion

In view of the above, Applicants respectfully submit that the USPTO has not met its burden of providing articulated reasoning with rational underpinning to support the legal conclusion of obviousness for the invention as defined in the claims of record. See KSR International Co. V. Teleflex Inc., 550 U.S. \_\_\_, 82 USPQ2d, 1385, 1396 (2007). Accordingly, Applicants respectfully submit that the rejections of record have been overcome and that the application is in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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